A Stem Cell Core Facility for Studying Human Embryonic Stem Cell Differentiation

Grant Award Details

A Stem Cell Core Facility for Studying Human Embryonic Stem Cell Differentiation

Grant Type: Shared Labs

Grant Number: CL1-00508-1.2

Project Objective: The Project Objective remains to provide Core stem cell facilities, expertise and services for the UCR research community.

Investigator:

Name:	Prudence Talbot
Institution:	University of California, Riverside
Type:	PI

Human Stem Cell Use: Embryonic Stem Cell, iPS Cell

Award Value: $1,663,284

Status: Closed

Progress Reports

Reporting Period: Year 1

View Report

Reporting Period: Year 2

View Report

Reporting Period: Year 3

View Report

Reporting Period: Year 4

View Report

Reporting Period: Year 5

View Report

Reporting Period: Year 6

View Report

Reporting Period: Year 7/NCE

View Report

Grant Application Details

Application Title: A Stem Cell Core Facility for Studying Human Embryonic Stem Cell Differentiation

Public Abstract: This application proposes to develop a Stem Cell Core Facility of ~1700 square feet to support the use of human embryonic stem cells (hESC) for a growing consortium of stem cell scientists at the home institution as well as neighboring institutions. The facility will be built and managed so as to allow use of non-NIH-approved hESC cell lines as well as research funded by non-federal agencies including the California Institute for Regenerative Medicine (CIRM). The Facility will be centrally located adjacent to other existing, successful core facilities and within short walking distance of all the users at the home institution. The Facility will be managed by an Oversight Committee consisting of faculty experienced in hESC and associated technologies, as well as those with experience in managing shared core facilities. The Committee will have close contact with an established Biotechnology Impacts Center to address any ethical issues that may arise.

The users at the home institution consist of an energetic, interdisciplinary group of both young and established investigators who have made a substantial commitment to stem cell biology. Within the past several years, they have held workshops on embryonic stem cells with neighboring institutions, taught two graduate level courses in stem cell biology, including one in bioethics, established a Stem Cell Center, and applied for and received CIRM funding. They have recently hired an experienced hESC investigator and are currently recruiting others, demonstrating the home institution's commitment to the field of hESC. The group currently consists of 30 investigators from three different colleges within the home institution who have common interests in molecular mechanisms of pluripotency and differentiation of hESC.

Several investigators have joint projects, including collaborations with investigators at neighboring institutions who will also be using the facility. The proposed Stem Cell Core Facility will allow this dynamic group of accomplished investigators to bring the promise of stem cell biology to an expanding, culturally diverse region of California.

The research programs that would use the facility concentrate on various aspects of the molecular mechanisms underpinning the pluripotency of hESC, as well as their ability to differentiate into different types of tissues. The results generated by these programs will contribute to the development of tools, diagnostics, and therapies by laying the foundation for understanding hESC and identifying new compounds and methodologies that will allow researchers to maintain hESC and prepare them for use in therapies. This basic understanding of the molecular networks governing hESC biology is essential before any safe and effective treatment can be considered for use in humans.

Statement of Benefit to California:	When Californians resoundingly passed Prop 71, they demonstrated the importance of stem cell research to all the citizens of our state. However, the human embryonic stem cell (hESC) lines that are currently sanctioned by the federal government are limited by many factors including genetic stability, contamination, poor growth characteristics, and lack of genetic and disease diversity. Working with non-federally approved hESC lines, including new more robust lines that will be developed in the future, will be necessary for any eventual therapeutic use of stem cells. Also critical to that success will be a thorough understanding of the molecular mechanisms that govern the pluripotency and differentiation of hESC, as well as attracting new scientific expertise to the field of stem cell biology. This proposal meets these challenges and benefits all Californians by establishing a Stem Cell Core Facility (SCCF) that will greatly expand both the scientific as well as the geographic base of stem cell research. The SCCF will allow research on non-federally funded hESC lines and service a group of highly accomplished investigators at the host and neighboring institutions in the most ethnically and culturally diverse and fastest growing region of California. The investigators are all at the top of their respective fields, have a range of hESC expertise and are committed to applying their experience to some of the most critical issues facing the hESC field today. The group is highly interdisciplinary and has an established history of productive interactions and collaborations. They have created a new Stem Cell Center which is aggressively fostering stem cell research and have secured extramural funding for that research. All proposed users have existing projects that directly impact our understanding of the basic biology of hESC and will generate data that will be essential to the successful development of stem cell-based therapies.

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